

VESTAMID®

Product Information

VESTAMID® L2124 NC

HIGH VISCOSITY, PLASTICIZED, HEAT AND LIGHT STABILIZED PA12 COMPOUND FOR EXTRUSION

VESTAMID® L2124 NC is a plasticized, heat- and light- stabilized polyamide 12 compound for the extrusion of flexible tubing and hoses especially for oil and petrochemical applications.

Tubing according to DIN 73 378, Type: PA 12-PHL.

VESTAMID® L2124 NC is characterized by a high melt viscosity and good dimensional control during pipe extrusion.

Properties of compounds based on PA12 vary little with changing humidity due to low moisture absorption. Parts made of this semi-crystalline material are characterized by exceptional impact strength, low coefficient of friction and good chemical resistance.

Pigmentation may affect values.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

Key Features

Industrial Sector

Automotive and Mobility, Sustainable, Industry and Engineering

Sustainability

Sustainable electricity

Processing

Injection molding, Extrusion

Delivery form

Pellets, Granules

Resistance to

Heat (thermal stability), Oil / fuels

Electrical

Insulating

Conformity

Automotive

Additives

Lubricant, Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	VESTAMID® L Compound medium	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	25.6	kg	ISO 14040, 14044
Global Warming Potential incl. bio. C incl. LUC	6.0	kg CO ₂ eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	6.0	kg CO ₂ eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	0.1	Annual crop eq. y	ISO 14040, 14044
GWP savings as compared to 2023 reference	-2.4	kg CO ₂ eq./kg	ISO 14040, 14044

Mechanical properties ISO	dry / cond	Unit	Test Standard
Tensile modulus	400 / 350	MPa	ISO 527
Tensile strength	26 / -	MPa	ISO 527
Yield stress	26 / 22	MPa	ISO 527
Yield strain	31 / 27	%	ISO 527
Stress at 50% strain	27 / *	MPa	ISO 527
Stress at break	39 / *	MPa	ISO 527
Nominal strain at break, tB	200 / >50	%	ISO 527
Tensile creep modulus, 0,5% Strain, 1h	* / 350	MPa	ISO 899-1
Tensile creep modulus, 0,5% Strain, 1000h	* / 270	MPa	ISO 899-1
Charpy impact strength, +23°C	N / -	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	140 / N	kJ/m ²	ISO 179/1eA
Type of failure	P / -	-	-
Charpy notched impact strength, -30°C	6 / 6	kJ/m ²	ISO 179/1eA
Type of failure	C / C	-	-
Flexural modulus, 23°C	400 / -	MPa	ISO 178
Flexural stress at conv. deflection, 23°C	14 / -	MPa	ISO 178

Flexural strength, 23°C	21 / -	MPa	ISO 178
Flexural strain at flexural strength, 23°C	9 / -	%	ISO 178
Flexural stress at break, 23°C	N / -	MPa	ISO 178
Flexural strain at break, 23°C	N / -	%	ISO 178

Thermal properties	dry / cond	Unit	Test Standard
Melting temperature	169 / *	°C	ISO 11357-1/-3
Temp. of deflection under load A, 1.80 MPa	45 / *	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	98 / *	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	164 / *	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	125 / *	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	180 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	170 / *	E-6/K	ISO 11359-1/-2
Melting Temperature	169	°C	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	1030 / 1040	kg/m ³	ISO 1183
Water absorption	1.3 / *	%	Sim. to ISO 62
Humidity absorption	0.5 / *	%	Sim. to ISO 62
Density	1030	kg/m ³	ASTM D 792

Burning Behav.	dry / cond	Unit	Test Standard
Burning behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.6 / *	mm	-
Burnin behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	3.2 / *	mm	-

Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity, V	1E10 / 2E9	Ohm*m	IEC 62631-3-1

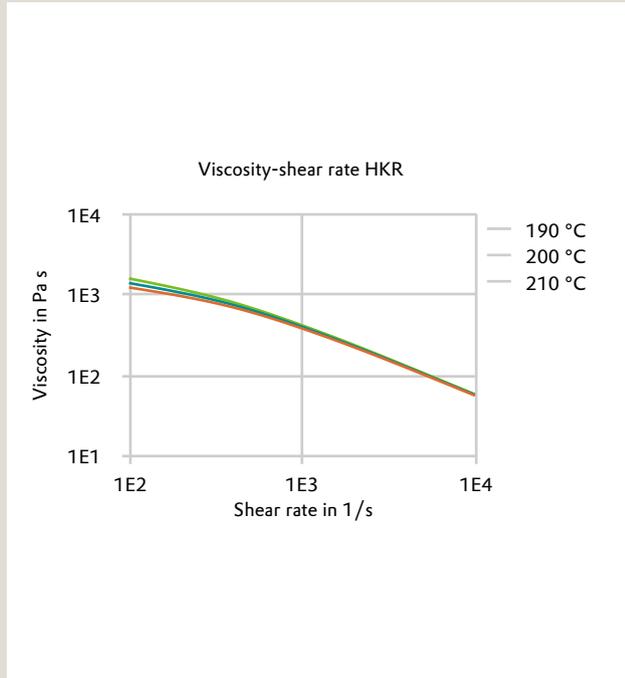
Surface resistivity, E	* / 1E12	Ohm	IEC 62631-3-2
Relative permittivity, 100Hz	12 / 16	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.8 / 4.2	-	IEC 62631-2-1
Dissipation factor, 100Hz	1600 / 1600	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	1500 / 2000	E-4	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	32 / 27	kV/mm	IEC 60243-1
CTI, test solution A, 50 drops value	600 / 600	-	IEC 60112
Assessment of the insulation group	I	-	DIN EN 60664-1

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	19 / *	cm ³ /10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	0.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6 / *	%	ISO 294-4, 2577
Mold temperature	80 / *	°C	-
Melt temperature	240 / *	°C	-

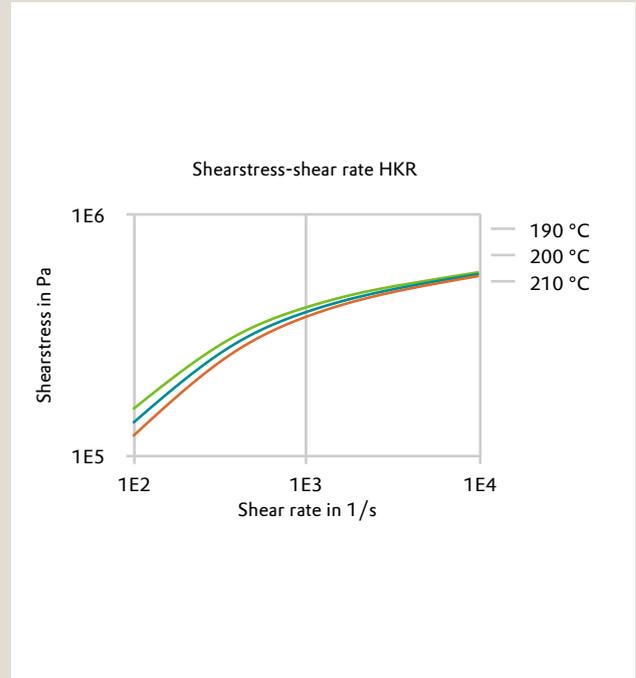
Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	220	°C	ISO 294
Injection Molding, mold temperature	60	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294
Injection Molding, pressure at hold	70	MPa	ISO 294

Diagrams

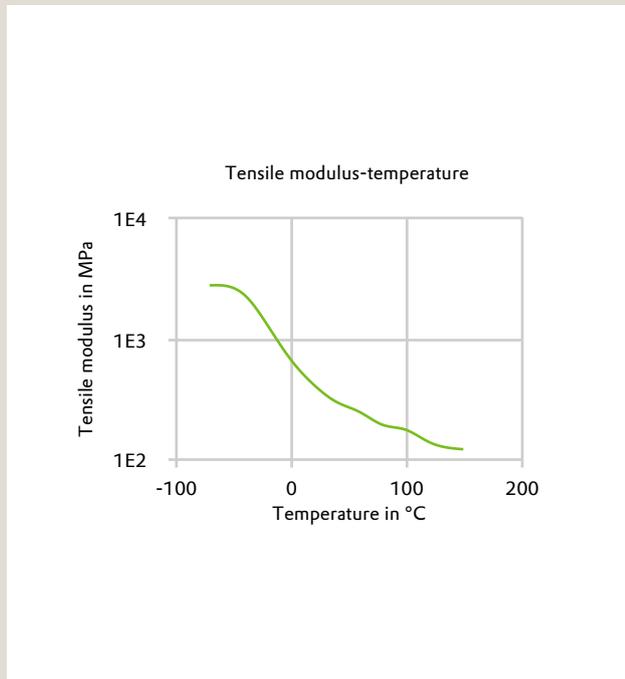
Viscosity-shear rate HKR



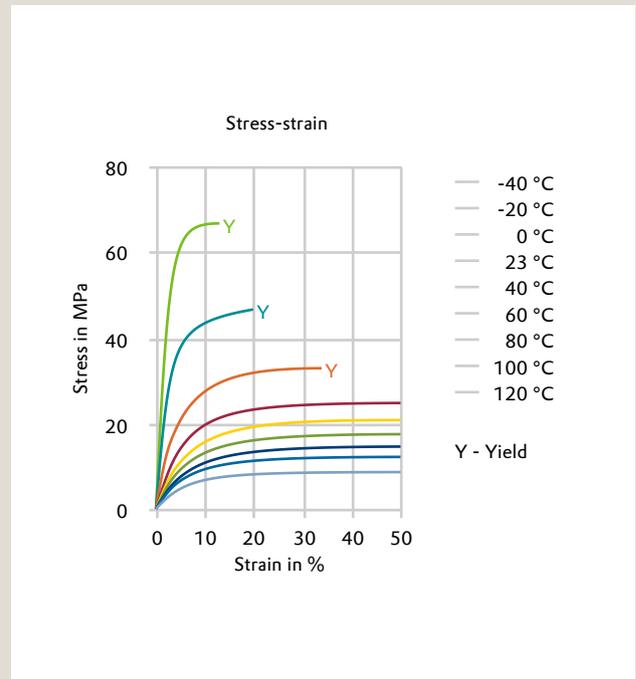
Shearstress-shear rate HKR



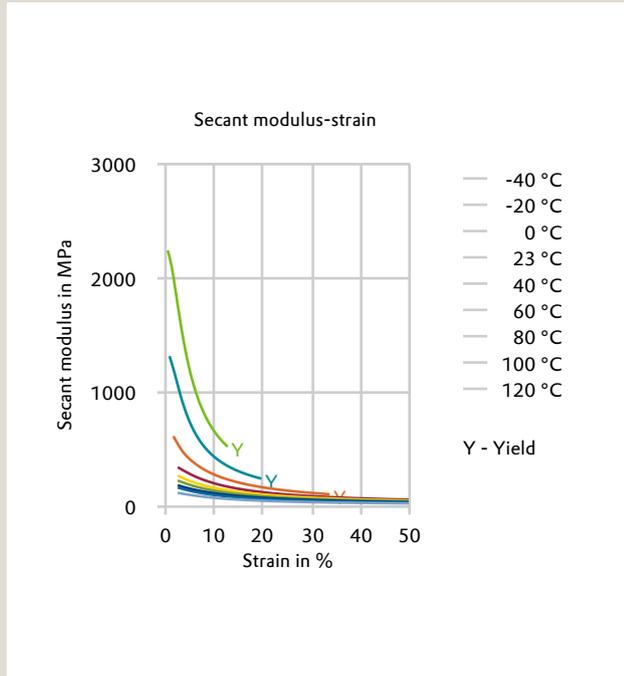
Tensile modulus-temperature



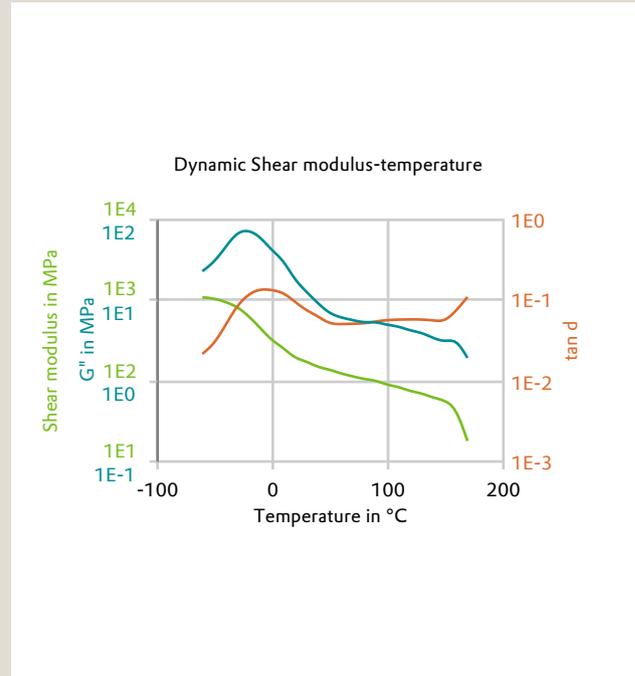
Stress-strain



Secant modulus-strain



Dynamic Shear modulus-temperature



Characteristics

Processing

Profile extrusion, Pipe/Tube extrusion

Color

Natural color

Special Characteristics

Semi-crystalline, Light-stabilized, U.V. stabilized, High heat resistant

Additives

Plasticizer, Light stabilizer, Heat stabilizer, Processing aids

Features

Low coefficient of friction

Chemical Resistance

General chemical resistance

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)
- ✓ Citric Acid solution (10% by mass) (23°C)

Bases

- ✓ Sodium Hydroxide solution (35% by mass) (23°C)
- ✓ Sodium Hydroxide solution (1% by mass) (23°C)

- ✓ Ammonium Hydroxide solution (10% by mass) (23°C)

Alcohols

- ✓ Isopropyl alcohol (23°C)
- ✓ Methanol (23°C)
- ✓ Ethanol (23°C)

Hydrocarbons

- ✓ n-Hexane (23°C)
- ✓ Toluene (23°C)
- ✓ iso-Octane (23°C)

Ketones

- ✓ Acetone (23°C)

Ethers

- ✓ Diethyl ether (23°C)

Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23°C)
- ✓ Insulating Oil (23°C)

Standard Fuels

- ✓ ISO 1817 Liquid 1 (60°C)
- ✓ ISO 1817 Liquid 2 (60°C)
- ✓ ISO 1817 Liquid 3 (60°C)
- ✓ ISO 1817 Liquid 4 (60°C)
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
- ✓ Diesel EN 590 (100°C)

Salt solutions

- ✓ Sodium Chloride solution (10% by mass) (23°C)
- ✓ Sodium Carbonate solution (20% by mass) (23°C)
- ✓ Sodium Carbonate solution (2% by mass) (23°C)
- ✓ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✓ Ethyl Acetate (23°C)
- ✓ Hydrogen peroxide (23°C)
- ✓ DOT No. 4 Brake fluid (120°C)
- ✓ Water (23°C)

Rheological calculation properties

	dry	Unit	Test Standard
Min. mold temperature	30	°C	-
Max. mold temperature	100	°C	-
Min. melt temperature	200	°C	-
Max. melt temperature	240	°C	-